

WHAT IS CLAIMED IS:

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1. A method of attaching to a
predetermined attachment position of an attachment
object a first electronic component and a second
electronic component, an external size of the first
10 electronic component being different from an
external size of the second electronic component,
comprising the steps of:

preparing a first electronic component
attaching tool for the first electronic component,
15 wherein the first electronic component attaching
tool has a function of aligning the first electronic
component to the predetermined attachment position
of the attachment object;

preparing a second electronic component
20 attaching tool for the second electronic component,
wherein the second electronic component attaching
tool has a function of aligning the second
electronic component to the predetermined position
of the attachment object;

25 attaching the first electronic component
attaching tool or the second electronic component
attaching tool to a standard part formed on the
attachment object in accordance with a first case
where the first electronic component is attached to
30 the predetermined attachment position or a second
case where the second electronic component is
attached to the predetermined attachment position,
wherein the forming of the standard part does not
substantially depend on the external sizes of the
35 first and second electronic components;

in the first case, by using the first
electronic component attaching tool, attaching the

first electronic component to the attachment object with the position of the first electronic component being aligned to the predetermined attachment position;

5 removing the first electronic component attaching tool from the attachment object;

 in the second case, by using the second electronic component attaching tool, attaching the second electronic component to the attachment object with the position of the second electronic component being aligned to the predetermined attachment position; and

 removing the second electronic component attaching tool from the attachment object.

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 2. The method according to claim 1,
20 wherein in the steps of removing, the first electronic component attaching tool is removed from the attachment object without adversely affecting the position of the first electronic component and without adversely affecting a condition of
25 connection between the first electronic component and the attachment object, and the second electronic component attaching tool is removed from the attachment object without adversely affecting the position of the second electronic component and
30 without adversely affecting a condition of connection between the second electronic component and the attachment object.

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3. The method according to claim 1,
wherein the first electronic component attaching
tool includes a first holding mechanism that holds
the first electronic component, the second
5 electronic component attaching tool includes a
second holding mechanism that holds the second
electronic component, the method further comprises
the steps of:

holding the first electronic component in
10 the first electronic component attaching tool by
using the first electronic holding mechanism before
attaching the first electronic component to the
attachment object; and

holding the second electronic component in
15 the second electronic component attaching tool by
using the second holding mechanism before attaching
the second electronic component to the attachment
object.

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4. The method according to claim 1,
wherein the attachment object is an open top type IC
25 socket, a tray, a tape, or an attachment substrate.

30 5. The method according to claim 1,
wherein the first electronic component attaching
tool includes a first opening that has the function
of aligning the position of the first electronic
component to the predetermined attachment position,
35 the second electronic component attaching
tool includes a second opening that has the function
of aligning the position of the second electronic

component to the predetermined attachment position,
the step of attaching the first electronic
component comprises the step of dropping the first
electronic component free in the first opening so
5 that the position of the first electronic component
is aligned to the predetermined attachment position
by the first electronic component attaching tool,
and
the step of attaching the second
10 electronic component comprises the step of dropping
the second electronic component free in the second
opening so that the position of the second
electronic component is aligned to the predetermined
attachment position by the second electronic
15 component attaching tool.

20 6. The method according to claim 5,
further comprising the steps of:
optically testing the first electronic
component via the first opening in a state where the
first electronic component is held by the first
25 electronic component attaching tool; and
optically testing the second electronic
component via the second opening in a state where
the second electronic component is held by the
second electronic component attaching tool.
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7. The method according to claim 1,
35 wherein the first and second electronic components
are chip size packages.

8. The method according to claim 1,
wherein the predetermined attachment position of the
attachment object is adhesive,

5 in the step of attaching the first
electronic component, the first electronic component
is aligned and attached to the adhesive
predetermined attachment position, and

10 in the step of attaching the second
electronic component, the second electronic
component is aligned and attached to the adhesive
predetermined attachment position.

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9. The method according to claim 4,
further comprising the step of attaching a cover on
the attachment object with the first electronic
components and/or the second electronic components
20 being aligned and attached to the predetermined
attachment positions of the attachment object so
that the first electronic components and/or the
second electronic components are held at the
predetermined attachment positions by the cover.

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10. An electronic component attaching
30 tool for attaching an electronic component to a
predetermined attachment position of an attachment
object, comprising:

a main body;

35 a first structure part that is formed on
the main body, wherein a position of the first
structure part is aligned to a standard part formed
on the attachment object, and the forming of the

standard part does not substantially depend on an external shape of the electronic component; and

5 a second structure part that is formed in accordance with the external shape of the electronic component so as to have a function of aligning a position of the electronic component to the predetermined position of the attachment object in a state where the first structure part is aligned and attached to the standard part.

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11. The electronic component attaching
15 tool according to claim 10, wherein the main body has an opening forming part, the first structure part is formed on an exterior surface of the main body, and the second structure part is formed on an inner wall of the opening forming part.

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12. The electronic component attaching
25 tool according to claim 11, wherein the opening forming part comprises a first opening forming portion at an entrance position from which the electronic component is inserted into the opening forming part, and a second opening forming portion
30 at an exit position that is an opposite position of the opening forming part from the entrance position, the first opening forming portion is larger than the external shape of the electronic component, and the second opening forming portion has an approximately
35 same shape as the external shape of the electronic component.

13. The electronic component attaching tool according to claim 10, further comprising a holding mechanism that is provided at the second structure part and holds the electronic component in
5 the electronic component attaching tool.

10 14. The electronic component attaching tool according to claim 13, wherein the holding mechanism includes:

a holding member that engages with the electronic component to prevent the electronic
15 component from being detached from the main body; and

an operational member, wherein when the main body is attached to the attachment object, the operational member is moved from an engagement
20 position where the holding member engages with the electronic component to an engagement releasing position where the holding member does not engage with the electronic component.

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15. The electronic component attaching tool according to claim 11, having a structure in
30 which a plurality of electronic components are arranged at upper sides of one another in the opening forming part of the main body, and further comprising:

a first holding mechanism having a holding
35 member and an operational member, wherein the holding member engages with the lowest electronic component that is located at the lowest position

among the plurality of electronic components to prevent the plurality of electronic components from being detached from the main body, and when the electronic component attaching tool is attached to the attachment object, the operational member is moved from a first engagement position where the holding member engages with the lowest electronic component to a first engagement releasing position where the holding member does not engage with the lowest electronic component; and

a second holding mechanism having a dropping prevention member and a releasing member, wherein the dropping prevention member engages with at least second lowest electronic component among the plurality of electronic components to prevent the at least second lowest electronic component from dropping when the operational member is moved to the engagement releasing position, and the releasing member releases the engagement between the dropping prevention member and the at least second lowest electronic component when the releasing member is operated to be moved from a second engagement position where the dropping prevention member engages with the at least second lowest electronic component to a second engagement releasing position where the dropping prevention member does not engage with the at least second lowest electronic component.

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16. The electronic component attaching tool according to claim 11, wherein the opening forming part has a first opening forming portion at an entrance position from which the electronic component is inserted into the opening forming part, and a second opening forming portion at an exit

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position that is an opposite position of the opening forming part from the entrance position, and a vertical center axis of the first opening forming portion is shifted from a vertical center axis of the second opening forming portion.

10 17. The electronic component attaching tool according to claim 11, wherein the inner wall of the opening forming part includes an inclination surface and a vertical surface, wherein when the electronic component is inserted into the opening forming part, the inclination surface guides the electronic component to the vertical surface, and the vertical surface aligns the electronic component to the predetermined attachment position of the attachment object.

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 18. The electronic component attaching tool according to claim 11, wherein the inner wall of the opening part includes a surface that is continuously formed from an entrance position of the opening part where the electronic component is inserted into the opening part to an exit position that is an opposite position of the opening part from the entrance position.

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 19. The electronic component attaching tool according to claim 10, wherein a conductive

film is coated on a surface of the main body.

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20. The electronic component attaching tool according to claim 10, wherein the main body is made of a conductive material.

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21. The electronic component attaching tool according to claim 11, wherein a plurality of
15 grooves are formed on the second structure part.

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22. The electronic component attaching tool according to claim 11, wherein the main body is made of an elastic material, and the opening forming part has a first opening forming portion at an entrance position of the opening forming part from
25 which the electronic component is inserted into the opening forming part, and a second opening forming portion at an exit position that is an opposite position of the opening forming part from the entrance position such that the first opening
30 forming portion is larger than the external shape of the electronic component, and the second opening forming portion is smaller than the external shape of the electronic component.

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23. The electronic component attaching
tool according to claim 11, wherein the main body
includes a brim part that is formed around an
entrance position of the opening forming part from
5 which the electronic component is inserted into the
opening forming part, the brim part extending
horizontally and outward, and a size of the brim
part in a plan view being larger than a size of the
attachment object in a plan view.

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24. The electronic component attaching
15 tool according to claim 10, further comprising a
position alignment mechanism that aligns a position
of the main body to the attachment object.

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25. The electronic component attaching
tool according to claim 24, wherein the position
alignment mechanism includes a plurality of position
25 alignment pins having different sizes, and the
plurality of position alignment pins are inserted
into position alignment holes formed on the
attachment object.

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26. The electronic component attaching
tool according to claim 13, wherein the second
35 structure part is formed by an inner wall of an
opening forming part that is formed on the main body,
and

the holding mechanism includes a protruding part that has elastically deforming properties and is provided on the inner wall of the opening forming part.

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27. The electronic component attaching tool according to claim 10, wherein the main body includes a recognition mark for recognizing a direction of the main body.

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28. The electronic component attaching tool according to claim 11, further comprising a plurality of the second structure parts.

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29. The electronic component attaching tool according to claim 11, wherein the main body includes a sliding path for sliding the electronic component toward the second structure part.

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30. An IC socket to which the electronic component attaching tool of claim 10 is attached and that is the attachment object of claim 10, comprising:

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a fixed part that has a contact pin, wherein the contact pin is to be connected to a

terminal of the electronic component;

5 a movable part that is moved toward the fixed part by pushing the movable part to apply a force to the contact pin so as to separate the contact pin from the terminal of the electronic component; and

10 the standard part that is formed on the movable part, and engages with the first structure part to align a position of the electronic component attaching tool to the standard part, wherein forming of the standard part does not substantially depend on the external shape of the electronic component.

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31. A tray to which the electronic component attaching tool of claim 10 is attached and that is the attachment object of claim 10, comprising:

20 an attachment depression part that includes an inner wall and to which the electronic component is attached, wherein forming of the inner wall of the attachment depression part does not substantially depend on the external shape of the electronic component,

25 wherein the inner wall of the attachment depression part includes the standard part that engages with the first structure part of the electronic component attaching tool to align a position of the electronic component attaching tool to the standard part.

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32. A tape to which the electronic component attaching tool of claim 10 is attached and that is the attachment object of claim 10, comprising:

5 an attachment depression part that includes an inner wall and to which the electronic component is attached, wherein forming of the inner wall of the attachment depression part does not substantially depend on the external shape of the
10 electronic component,

 wherein the inner wall of the attachment depression part includes the standard part that engages with the first structure part of the electronic component attaching tool to align a
15 position of the electronic component attaching tool to the standard part.

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